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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/005,633	12/05/2001	John Whittier Slemmons	A11-26124 DI	9245
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128            7590            06/15/2004

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EXAMINER
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GRAYBILL, DAVID E

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

in

**Office Action Summary**

<b>Application No.</b> 10/005,633	<b>Applicant(s)</b> SLEMMONS ET AL.	
<b>Examiner</b> David E Graybill	<b>Art Unit</b> 2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on 24 March 2004.
- 2a)  This action is **FINAL**.                      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4)  Claim(s) 25-28,31,32 and 34-52 is/are pending in the application.  
4a) Of the above claim(s) 34,35,37,38,40-42 and 49-52 is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 25-28,31,32,36,39 and 43-48 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \*    c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5)  Notice of Informal Patent Application (PTO-152)
- 6)  Other: \_\_\_\_\_

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The amendment to the claims filed 3-24-4 is non-compliant because it fails to conform to the provisions of 37 CFR 1.121(c):

*Claims.* Amendments to a claim must be made by rewriting the entire claim with all changes (*e.g.*, additions and deletions) as indicated in this subsection, except when the claim is being canceled. Each amendment document that includes a change to an existing claim, cancellation of an existing claim or addition of a new claim, must include a complete listing of all claims ever presented, including the text of all pending and withdrawn claims, in the application. The claim listing, including the text of the claims, in the amendment document will serve to replace all prior versions of the claims, in the application. In the claim listing, the status of every claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

Specifically, in the claim listing, the statuses of the withdrawn claims 34, 35, 37, 38, 40-42 and 49-52 are not indicated after their claim numbers by using the identifier (Withdrawn).

Because the response appears to be bona fide, but through an apparent oversight or inadvertence the response is incomplete, and in order to continue to afford applicant the benefit of compact prosecution, the requirement to complete the response within a one month time limit is waived, the amendment is entered, and the claims are examined on the merits.

Applicant is respectfully requested to scrutinize the claims and correct any additional errors.

Claims 26 and 48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains

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subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The undescribed subject matter is the limitation, "tape automated bonding (TAB) carrier."

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 26, 28, 39 and 43-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 26 and 48 the scope of the term "tape automated bonding (TAB) carrier" is unclear because there is no art recognized definition of the term, and it is not otherwise explicitly defined in the disclosure.

In claims 28, 39 and 43-46 the scope of the term "fan-out conductors" is unclear because there is no art recognized definition of the term, and it is not otherwise explicitly defined in the disclosure.

In the rejections infra, reference labels are generally recited only for the first recitation of identical elements.

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 25, 27, 28, 31, 32, 36, 39 and 43-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Hatada (4784972).

At column 3, line 30 to column 4, line 63, Hatada teaches the following:

A microbeam assembly adapted to form interconnects between integrated circuit bond pads and substrate contacts, the microbeam assembly comprising: a carrier 10; a release layer located on said carrier, said release layer being etchable; and a plurality of conductive microbeams 12 releasably bonded to said release layer, wherein the conductive microbeams are sized and spaced to mate with the bond pads 14 of an integrated circuit 16, and wherein said microbeams are inherently releasable from said carrier by at least partially etching away said release layer, wherein the carrier is inherently substantially rigid, wherein the carrier comprises fan-out conductors 12b for electrical testing of an integrated circuit, wherein at least one microbeam comprises a bump 12A, wherein the bump is comprised of solder, wherein said fan-out conductors are located on

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a first region of said carrier and said release layer is located on a second region of said carrier, wherein said conductive microbeams are releasably bonded to said release layer and are in electrical communication with said fan-out conductors for electrical testing of an integrated circuit connection to the microbeams.

A microbeam assembly adapted to form interconnects between integrated circuit bond pads and substrate contacts, the microbeam assembly comprising: a carrier; a plurality of fan-out conductors located on a first region of said carrier; a release layer located on a second region of said carrier; a plurality of conductive microbeams located on said release layer, wherein each of said microbeams is in electrical communication with at least one of said fan-out conductors, wherein said fan-out conductors are located on a first region of said carrier and said release layer is located on a second region of said carrier and at least partially surrounds said fan-out connectors, wherein at least one of said conductive microbeams is located on said release layer and extends at least partially onto one of said fan-out conductors, wherein at least one of said fan-out conductors is adjacent to said release layer and at least one of said conductive microbeams is located

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on said release layer and extends at least partially onto one of said fan-out conductors, wherein said release layer is inherently etchable and said microbeams being releasable from said carrier by at least partially etching away said release layer.

To further clarify the teaching wherein said release layer is inherently etchable and said microbeams being inherently releasable from said carrier by at least partially etching away said release layer, as cited, Hatada teaches that the release layer is Pt and Pd, and Pt and Pd are inherently capable of being etched. Furthermore, the microbeams are inherently capable of being released from the carrier by at least partially etching away the release layer because the microbeams are releasably bonded to the release layer and complete etching of the release layer would release the microbeams from the carrier.

Although Hatada does not appear to explicitly teach wherein the at least one microbeam further comprises a solder dam, this is a statement of intended use of the microbeam which does not result in a structural difference between the claimed microbeam and the microbeam of Hatada. Further, because the microbeam of Hatada has the same structure as the



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claimed microbeam, it is inherently capable of being used as a solder dam, and the statement of intended use does not patentably distinguish the claimed microbeam from the microbeam of Hatada. Similarly, the manner in which a product operates is not germane to the issue of patentability of the product; Ex parte Wikdahl 10 USPQ 2d 1546, 1548 (BPAI 1989); Ex parte McCullough 7 USPQ 2d 1889, 1891 (BPAI 1988); In re Finsterwalder 168 USPQ 530 (CCPA 1971); In re Casey 152 USPQ 235, 238 (CCPA 1967). Also, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim."; Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). And, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims."; In re Young, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 136 USPQ 458, 459 (CCPA 1963)). And, claims directed to product must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does [or is intended to do]." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

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Although Hatada does not appear to explicitly teach wherein the carrier is a tape automated bonding (TAB) carrier, this limitation is a statement of intended use of the carrier which does not result in a structural difference between the claimed carrier and the carrier of Hatada. Further, because the carrier of Hatada has the same structure as the claimed carrier, it is inherently capable of being used for the intended use as a TAB carrier, and the statement of intended use does not patentably distinguish the claimed carrier from the carrier of Hatada.

Also, although Hatada does not appear to explicitly teach the process limitation, "said release layer is formed from a material selected from the group consisting of polyimide and parylene," this process limitation does not structurally limit the product of Hatada, and the product of Hatada could be made by the process or another process. To further clarify, the process does not limit the product to any particular structure, such as "polyimide or parylene," because it merely recites precursor materials which are not necessarily present in the final product.

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Claims 26 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatada as applied to claims 26 and 38 supra, and further in combination with Chen (6307721).

Hatada does not appear to explicitly teach the limitation, "said release layer is formed from a material selected from the group consisting of polyimide and parylene."

Still, at column 6, line 47 to column 7, line 29, Chen teaches a release layer formed from polyimide. In addition, it would have been obvious to substitute the polyimide release layer of Chen for the release layer of Hatada because it would provide a release layer suitable for its intended use.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hatada as applied to claim 32 supra, and further in combination with Moore (5281684).

Hatada does not appear to explicitly teach wherein the at least one microbeam further comprises a solder dam.

Nonetheless, at column 3, lines 17-30, Moore teaches wherein at least one microbeam 26 comprises a solder dam 28. Moreover, it would have been obvious to combine the teachings of Moore and Hatada because it

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would provide solder bump connections and prevent solder from wetting along a portion of the microbeam.

Claims 25-28, 31, 32, 36, 39, and 43-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Little (5665648).

At column 3, lines 18-54; column 4, lines 65-68; and column 8, line 16 to column 9, line 55, Little teaches the following:

A microbeam assembly adapted to form interconnects between integrated circuit bond pads and substrate contacts, the microbeam assembly comprising: a carrier 20; a release layer 40 located on said carrier, said release layer being etchable; and a plurality of conductive microbeams 220 releasably bonded to said release layer, wherein the conductive microbeams are sized and spaced to mate with the bond pads 36 of an integrated circuit 22, and wherein said microbeams are releasable from said carrier by at least partially etching away said release layer, wherein the carrier is inherently substantially rigid, wherein the carrier comprises fan-out conductors 224, wherein at least one microbeam comprises a bump 224, wherein the bump is comprised of solder "Au," wherein said fan-out conductors are located on a first region of said carrier and said release layer

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is located on a second region of said carrier, wherein said conductive microbeams are releasably bonded to said release layer and are in electrical communication with said fan-out conductors.

A microbeam assembly adapted to form interconnects between integrated circuit bond pads and substrate contacts, the microbeam assembly comprising: a carrier; a plurality of fan-out conductors located on a first region of said carrier; a release layer located on a second region of said carrier; a plurality of conductive microbeams located on said release layer, wherein each of said microbeams is in electrical communication with at least one of said fan-out conductors, wherein said fan-out conductors are located on a first region of said carrier and said release layer is located on a second region of said carrier and at least partially surrounds said fan-out connectors, wherein at least one of said conductive microbeams is located on said release layer and extends at least partially onto one of said fan-out conductors, wherein at least one of said fan-out conductors is adjacent to said release layer and at least one of said conductive microbeams is located on said release layer and extends at least partially onto one of said fan-out conductors, wherein said release layer is etchable and said microbeams

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being releasable from said carrier by at least partially etching away said release layer.

Little does not appear to explicitly teach that the fan-out conductors are for electrical testing of an integrated circuit connection to the microbeams, wherein the at least one microbeam comprises a solder dam, and wherein the carrier is a tape automated bonding (TAB) carrier.

Regardless, these limitations are statements of intended use which does not result in a structural difference between the claimed product and the product of Little. Further, because the product of Little has the same structure as the claimed product, it is inherently capable of being used for the intended uses, and the statements of intended use do not patentably distinguish the claimed product from the product of Little.

Also, although Little does not appear to explicitly teach the process limitation, "said release layer is formed from a material selected from the group consisting of polyimide and parylene," this process limitation does not structurally limit the product of Little, and the product of Little could be made by the process or another process. To further clarify, the process does not limit the product to any particular structure, such as, "polyimide or

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parylene," because it merely recites precursor materials which are not necessarily present in the final product.

Claims 26 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Little as applied to claims 26 and 38 supra, and further in combination with Chen (6307721).

Little does not appear to explicitly teach the limitation, "said release layer is formed from a material selected from the group consisting of polyimide and parylene."

Notwithstanding, at column 9, lines 41-43, Little teaches that the release layer can be "other release materials," including photoresist. Moreover, at column 6, line 47 to column 7, line 29, Chen teaches that photoresist and polyimide are release layer equivalents. Therefore, it would have been obvious to substitute the polyimide of Chen for the photoresist of Little.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Little as applied to claim 32 supra, and further in combination with Moore (5281684).

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Little does not appear to explicitly teach wherein the at least one microbeam further comprises a solder dam.

Nonetheless, at column 3, lines 17-30, Moore teaches wherein at least one microbeam 26 comprises a solder dam 28. Moreover, it would have been obvious to combine the teachings of Moore and Little because it would provide solder bump connections and prevent solder from wetting along a portion of the microbeam.

Applicant's amendment and remarks filed 3-24-4 have been fully considered, are addressed by the rejections supra, and are further addressed infra.

Applicant argues that the 35 U.S.C. 112, second paragraph rejection of claims 26, 28, 39 and 43-48 is improper because the terms "tape automated bonding (TAB) carrier" and "fan-out conductors" are allegedly well known in the art. To support this allegation, applicant contends that the terms appear in patent claims.

This contention is respectfully deemed unpersuasive. In particular, it is respectfully noted that MPEP 1701 admonishes: "Every patent is presumed to be valid, 35 U.S.C. 282, first sentence. Public policy demands that every



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employee of the Patent and Trademark Office refuse to express to any person any opinion as to the validity or invalidity of, or the patentability or unpatentability of any claim in any U.S. patent." Further, it is well settled that the allowance of claims in one application has no relevancy in the consideration of the question of patentability of claims in another application; In re Greider et al. 54 USPQ 139 [CCPA 1942]. In re Albert C. Fischer 8 USPQ 481 [1931].

In any case, it is respectfully noted that the claims are not rejected because the terms are not well known; rather, they are rejected because there is no art recognized definition of the terms, and they are not otherwise explicitly defined in the disclosure. To this end, applicant merely cites occurrences of the terms in patents, but does not define the terms.

Also, applicant asserts that "there is nothing in Hatada to teach or suggest that the Pt and Pd layers could be etched without destroying the microbeams also."

This assertion is respectfully deemed unpersuasive because the scope of the claims is not so limited, and Hatada is not necessarily applied to the rejection for this teaching.

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Applicant also contends that "there is nothing in Hatada to teach or suggest that etching the Pt and Pd layers would actual release the beams in the structure disclosed in the Hatada reference."

This contention is respectfully deemed unpersuasive because rejection under 35 U.S.C. 102 and/or 35 U.S.C. 103 is indicated where prior art discloses a product that appears to be either identical with or only slightly different from the product claimed in a product by process claim and/or defined by an intended use limitation. Further, applicant can be required to prove that the prior art product does not necessarily or inherently possess characteristics of the claimed product. Whether the rejection is based on inherency under 35 U.S.C. 102, on prima facie obviousness under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same. When, as here, there is reason to believe that the functional limitation asserted to be critical for establishing novelty in the claimed subject matter is an inherent characteristic of the prior art, the Office possesses authority to require applicant to prove that subject matter shown to be in the prior art does not possess the characteristic relied on. See *In re Fitzgerald, Sanders, and Bagheri*, 205 USPQ 594 (CCPA 1980).

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**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Head SAE Linda Hodge-Taylor whose telephone number is 571-272-1585.**

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is (703) 872-9306.

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David E. Graybill  
Primary Examiner  
Art Unit 2827

D.G.  
13-Jun-04